Triple Site Community Meeting – Rainbow Montessori School – Meeting Minutes
Tuesday, April 14, 2015 | 6:00 – 7:00 p.m.

Staff members:

- Melanie Morash, EPA
- Alejandro Diaz, EPA
- Daniel Stralka, EPA
- John Lyons, EPA
- Caleb Shaffer, EPA
- Rusty Harris-Bishop, EPA
- Rose Condit, CB&I
- Amy Huang, Circlepoint

I. Presentation by Melanie Morash

- Two main points:
    - EPA's top priority is investigating vapor intrusion and ensuring that communities are protected
    - Lots of data have already been taken – year in and year out, the data have been protective
- EPA is now responding and addressing what might happen in the future – what is the potential for risk?
    - There is an extensive network of pumping wells to contain the plume (and maintain "hydraulic control")
    - At AMD & TRW sites, bioremediation projects in place and working well to reduce high levels of trichloroethene (TCE) in the groundwater
    - EPA will work with the Responsible Parties in the coming year on investigating other treatment technologies to accelerate the cleanup of the groundwater
- Schools and residences are a high priority for this year
- This past year EPA's action level for TCE was strengthened.
    - Single most investigated chemical in history of agency (20+ year effort)
    - Action levels were lowered
    - EPA has taken a more cautious approach to the sampling (e.g. , to determine how levels can vary over time)
- Results from Rainbow Montessori showed elevated levels in some of the newer types of samples that are being collected this year, but all "classroom-type" samples (similar to the ones that have been collected for the past 10 years) continue to remain protective
    - Sampled in a new way (extended duration); also sampled crawl space
    - School-day-length samples were all below 2 ug/m3, but the 7-day sample of the auditorium was 16 ug/m3. The crawl space also showed TCE above 2 ug/m3. Further investigation revealed that an actuator that controls a damper on the ventilation unit on the roof had malfunctioned (it was not allowing fresh air into the room)
    - 2nd round of sampling following repairs to the ventilation system confirmed TCE had dropped to extremely low levels, consistent with outdoor air.

- This month, EPA is working with the schools to collect "ventilation-off" samples, to assess "worst-case" scenarios
    - EPA is working with the RPs to design a permanent engineered system for Building L (to address the elevated levels measured in the crawl space and auditorium)
    - The RPs are investigating whether ventilation of the crawl space will fully reduce the concentration levels measured in the auditorium)
    - In the meantime, EPA is working with the RPs to perform ventilation inspections
    - If the crawl space ventilation doesn't work or works only partially, other options will be considered
        - Additional sampling in the building, including "real-time" sampling or sub-slab sampling in the auditorium floor
        - Soil vapor extraction system
        - Incorporating ventilation as part of the long-term solution, as appropriate

II. Questions from Audience

1. What were the 3 buildings with the highest levels at Rainbow?
    a. So far, buildings H, L, and V. EPA will continue to sample under different ventilation scenarios (including "ventilation off"), before making a final decision as to which buildings require mitigation.
2. What are the effects of long-term exposure (higher than 2 ug/m3)?
    a. Cancer and non-cancer health effects (liver, kidneys, neurotoxin, immune system, male reproductive system, birth cardiac defect).
3. Is the action level of "2 ug/m3" based on a normal adult? Or is it different for a small child?
    a. If we were to hit 2 ug/m3, you wouldn't immediately see effects (there's a safety buffer), and the number is based on fetus exposure for 24 hours a day over 7 days.
4. The measurement is a density measurement, but you also have a 24/7 time measurement. What is the action level based on?
    a. 2 ug/m3 (concentration in the air) and breathing that level for 24/7.
5. Is it an average measurement or peak measurement?
    a. A "grab sample" is the measurement over a short period of time, such as 20 seconds or 60 seconds. An 8-hour sample or "integrated sample" will be an average measurement over that period of time.
    b. EPA is also looking at the possibility of "real-time" measurements (using a device that can measure every 15 minutes) – but these don't show how values vary over time/longer-term.
6. What was the duration when you measured level 16 ug/m3?
    a. 24 hours over 7 days.
7. How does the agency determine what a permissible level is? Lab rats?
    a. EPA does a literature search regarding occupational exposure or human exposure and examines what is the most sensitive endpoint (cancer or other health effects) and how strong the data are. There were also studies of chick embryos and epidemiological

studies where communities in the US were drinking contaminated groundwater. With action level of 2 ug/m3, EPA still would not expect to see effects in the most sensitive population/individuals, but is asking if there is a level of concern where they need to do more.

   b. All of the studies were presented by EPA to the US Science Advisory Board, which did an independent review and agreed the data were scientifically sound. There have been many industry challenges to these low action levels, however EPA continues to maintain that a short-term screening of 2 ug/m3 is appropriate for residential/school scenarios.
   c. EPA is currently pursuing protective and proactive risk management efforts –didn't want to wait another 5-10 years to have a more definitive answer on the science.

8. How long has the Triple Site been recognized as a Superfund site?
   a. AMD & TRW have been on the National Priorities List (NPL) of Superfund sites since 1991. Philips was proposed for listing on the NPL at the same time, but wasn't because it was still an active semiconductor facility (regulated under the Resource Conservation and Recovery Act (RCRA)).
   b. Regulation of Philips was transferred back to EPA from the State Water Resources Control Board. EPA may now list it on the NPL; it is being regulated as a Superfund site now.
9. This is a private school; would the testing be different or would requirements be different if it were public?
   a. Testing is occurring at CCLC, Kings Academy, Rainbow, and San Miguel. It's a mix of public and private, but the same regulatory/health standards apply to all.
   b. The Responsible Parties (RPs) are performing and paying for the testing and any required mitigation, under EPA oversight. The relationship has been positive so far.
   c. EPA's focus doesn't change when looking at communities with environmental justice issues.
10. So far, the remediation is improving ventilation? That's been effective?
   a. Yes, EPA is confident that providing fresh air maintains air quality.
11. Are there plans for continuous monitoring?
   a. EPA hasn't ruled out doing that kind of sampling. After the "HVAC Off" testing, EPA will reevaluate if a technology like that needs to be added.
12. Why doesn't EPA identify failures instead of just sampling?
   a. That's why EPA is looking at using other (sub-surface) controls. Experience in Mountain View and other cities in the South Bay has shown those technologies to be reliable. The long-term solution is to get the groundwater cleaned up.
13. What are the recommendations for Building H specifically?
   a. EPA didn't see anything over 2 ug/m3 in Buildings H or V, but it was close. Ventilation system inspections have occurred, and new sampling locations/classrooms have been added to Buildings H, L, and V for the next round of sampling to cover discrete ventilation zones.
   b. LEED-certified/Green buildings can have high levels of vapor intrusion due to automated shutoff of outdoor air intakes when outdoor air temperatures are high, to reduce energy

costs associated with cooling hot outdoor air. For some buildings, ventilation is not ideal for a long-term solution.

14. In your "HVAC Off" sampling, will you measure average or peak?
    a. It will be an integrated sample (average) over 24 hours. For example, the HVAC will be shut down on Friday evening, left alone for 24 hours, and then the samples will be taken.
15. What was the rate of the sampling for the last 10 years? Once a month? Once a year?
    a. The RPs began indoor air sampling in 2003 through Locus Technologies. They collected 24-hour indoor air samples once a year in many classrooms. Duplicate and outdoor air samples were taken at the same time.
    b. EPA now wants to sample under buildings, in floor drains (pathway samples), through cracks in slab, with ventilation off, etc.
16. With additional samples, you obviously have a higher sample confidence. What are the confidence levels?
    a. EPA has not done a statistical analysis of the samples from the past 10 years, but is starting to do it for this year's sampling event (looking at mean concentrations for the outdoor air, 95% Upper Confidence Levels, etc.).
17. What is the targeted confidence level for the outside air?
    a. EPA is looking at each area as an individual point and calculating confidence (95%) compared to the level of concern, e.g. , for that time period.
    b. Some will argue for a sampling approach that entails a limited amount of sampling (for example, one block) and then making assumptions about the other buildings in an area. However, vapor intrusion is complex and often this isn't possible because each home is unique. A Mountain View study of identical apartment units on the same slab (only separated by a wall) showed very different results, indicating that EPA can't necessarily make inferences about wider populations. "Preferential pathways" (drains, etc.) matter.
18. Do you sample multiple points in the same room? What's a large enough sample size?
    a. Air mass does mix. EPA is taking duplicate samples, "split" samples together with the Responsible Parties, and samples a variety of locations in rooms and various ventilation zones.
19. (Commenter asked again for confidence level.)
    a. EPA is taking duplicates to ensure samples are performing to standard and taking samples at multiple times – looking at conditions where the potential for vapor intrusion is highest.
    b. EPA cannot give a statistical confidence range, but agreed to discuss with the commenter afterward.